



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/747,913	12/29/2003	Jae Hee Hong	11037-176-999	6792

24341 7590 10/18/2005

MORGAN, LEWIS & BOCKIUS, LLP.  
2 PALO ALTO SQUARE  
3000 EL CAMINO REAL  
PALO ALTO, CA 94306

EXAMINER

RIVELL, JOHN A.

ART UNIT PAPER NUMBER

3753

DATE MAILED: 10/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/747,913

Applicant(s)

HONG ET AL.

Examiner

John Rivell

Art Unit

3753

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 02 August 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

Applicant's arguments filed August 2, 2005 have been fully considered but they are not persuasive.

New claims 3-7 have been added. Thus claims 1-7 are pending.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 7 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Currently claim 7 depends from "claim 61". As there is no claim "61" in the application, the scope of the claim is indefinite and indeterminate. The claim is included in the rejection below as if properly dependent on any one of claims 1-6.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al. in view of Dach.

The patent to Kim et al., in figure 3, discloses a "hydraulic pressure regulating device for variable line pressure control, comprising: a valve housing (containing spool 20 and) defining a chamber therein; a sleeve (24) disposed in the chamber and provided with a spring (abutting surface)...; an adjustment screw assembly (at adjusting screw 74) configured to adjust a position of the sleeve (24), the sleeve (24) being supported by the adjustment screw (74) assembly; a spring (26), one end of which is (in abutment with the end of sleeve 24)...; and a valve spool (20) disposed in the chamber to be driven by hydraulic pressure supplied into the chamber, the valve spool being elastically supported by the spring (26)" as recited in claim 1.

Thus the patent to Kim et al. discloses all the claimed features with the exception of having a "receiving hole in one side (of the sleeve 24 into which the spring 26 is inserted) such that the spring is supported by the sleeve thereof (and) a projection portion being formed on an outer circumference of the sleeve (24) to contact an inner surface of the valve housing".

The patent to Dach, in figs. 10-3 for example, discloses that it is known in the art to employ a spring adjusting "sleeve" element at piston 2 which includes, from the right side, a "receiving hole" into which a spool biasing spring 6 is inserted" for the purpose of supporting an end of the spring and in which the piston 2 includes, at the opposite ends thereof a "projection", unnumbered but clearly demonstrated by the annular channel between the opposite projections, each projection sliding in sealing contact with the bore of the cylinder in which the piston 2 slides for the purpose of sealingly contacting the cylinder bore precluding fluid leakage past the piston 2. The use of the two "projections" reduces sliding friction between the sleeve/piston 2 and cylinder relative to a piston/sleeve cylinder arrangement in which the majority of the length of the reciprocating sleeve/piston is in contact with the internal surface of the cylinder.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Kim et al. a bore within the sleeve 24 for the purpose of supporting the end of the spring 26 and to employ a projection about the periphery of the sleeve 24 for the purpose of sealingly contacting the cylinder bore precluding fluid leakage past the sleeve, thus reducing friction between the sleeve/piston 24 and cylinder relative to a piston/sleeve cylinder arrangement in which the majority of the length of the reciprocating sleeve/piston is in contact with the internal surface of the cylinder as recognized by Dach.

Regarding claim 2, in the combination of Kim et al. and Dach al., "the projection portion (as taught by Dach will be) formed on the outer circumference of a portion of the sleeve (2 of Kim et al.) where the spring receiving hole is formed" as recited.

Regarding claim 3, in the combination of Kim et al. and Dach al., "the projection portion (taught by Dach will be) positioned to overlap with the valve spool (20) whereby a length of the inner surface (of the bore in which the sleeve and spool reciprocate) that must be precisely manufactured can be decreased" as recited.

Regarding claim 4, in the combination of Kim et al. and Dach al., "a portion of an inner surface of the chamber (surrounding the sleeve 24 of Kim et al. or the sleeve 2 of Dach) is precisely machined for cooperation with the circumferential sleeve projection and said portion has a length corresponding to an adjustment range of said adjustment screw assembly" in order to operate smoothly without fluid leakage.

Regarding claim 5, in Kim et al., "said sleeve (24) has a cross-section in an H-shape" as recited.

Regarding claim 6, the patent to Kim et al. in figs. 1-3 for example, discloses a "hydraulic pressure regulating device for variable line pressure control, comprising: a valve housing (containing spool 20 and) defining a chamber (accommodating spool 20

and sleeve 24) therein, wherein said chamber has an inner surface with a precisely machined portion (to permit smooth leak free cooperation); a sleeve (24) disposed in the chamber and provided with a spring (abutting surface)... a second hole in an opposite end (accommodating the adjusting screw assembly at 74)...; an adjustment screw assembly (at screw 74) received in said second hole and configured to adjust a position of the sleeve (74) over a range of adjustment wherein said range corresponds to a length of said precisely machined portion; a spring (26), one end of which (abuts the sleeve 24)...; and a valve spool (20) disposed in the chamber to be driven by hydraulic pressure supplied into the chamber, the valve spool (20) being elastically supported by the spring (26)" as recited.

Thus the patent to Kim et al. discloses all the claimed features with the exception of having a "receiving hole in one side (of the sleeve 24 into which the spring 26 is inserted) such that the spring is supported by the sleeve thereof (and) a projection portion being formed on an outer circumference of the sleeve (24) to contact said precisely machined surface of said inner surface".

The patent to Dach, in figs. 10-3 for example, discloses that it is known in the art to employ a spring adjusting "sleeve" element at piston 2 which includes, from the right side, a "receiving hole" into which a spool biasing spring 6 is inserted" for the purpose of supporting an end of the spring and in which the piston 2 includes, at the opposite ends thereof a "projection", unnumbered but clearly demonstrated by the annular channel between the opposite projections, each projection sliding in sealing contact with the "precisely machined surface" of the bore of the cylinder in which the piston 2 slides for the purpose of sealingly contacting the cylinder bore precluding fluid leakage past the piston 2. The use of the two "projections" reduces sliding friction between the sleeve/piston 2 and cylinder relative to a piston/sleeve cylinder arrangement in which

the majority of the length of the reciprocating sleeve/piston is in contact with the internal surface of the cylinder.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Kim et al. a bore within the sleeve 24 for the purpose of supporting the end of the spring 26 and to employ a projection about the periphery of the sleeve 24 for the purpose of sealingly contacting the precisely machined surface of the cylinder bore precluding fluid leakage past the sleeve, thus reducing friction between the sleeve/piston 24 and cylinder relative to a piston/sleeve cylinder arrangement in which the majority of the length of the reciprocating sleeve/piston is in contact with the internal surface of the cylinder as recognized by Dach.

Regarding claim 7, as understood, in Kim et al. "said sleeve (24) has a cross-section in an H-shape" as recited.

Regarding applicants remarks as they may apply to the above, reliance on the written portion of the disclosure of Dach and not considering that which is reasonably disclosed in the drawings of Dach will not be persuasive in an attempt to convince one that the sleeve/piston 2 of Dach does not include "projections" in sealing contact with the cylinder in which the sleeve/piston 2 reciprocates. Moreover, the argument that:

"Dach does not teach better sealing by use of the sleeve projection (because) (t)he use of the sleeve (i.e. the piston 2) in Dach is for covering the discharge port 13. Dach does not teach the advantages of sealing 'a portion of the chamber 204 where the valve spool 200 is positioned from the other portion of the chamber 204' as described in the current invention (and that) Dach does not teach facilitated movement of the sleeve. The current invention teaches that, 'the sleeve 220 seals a variable solenoid control pressure, and an adjusting range of the adjustment screw assembly 230 is twice that of a conventional hydraulic pressure regulating device.' However, Dach teaches nothing about the facilitated movement of the sleeve, and in fact, due to the movement of the sleeve (i.e. the piston

Art Unit: 3753

2) that Dach does describe, a longer projection would actually limit rather than expand the possible movement of the sleeve (i.e. the piston 2)"

is unpersuasive in that there is no requirement that the features called for by the claim, disclosed in a secondary reference, be exactly for the purpose disclosed in the application. That is, as here, the reason for making the modification is the teaching gleaned from the drawings that the spring adjustment biasing sleeve/piston 2 includes opposed "projections", further illustrated by the clearly shown annular channel about the piston 2, which "projections" are in sealing sliding contact with the internal surface of the cylinder in which the piston reciprocates. The now lesser surface area of the piston in contact with the cylinder bore clearly reduces frictional contact of the piston and cylinder relative to those arrangements in the majority of the peripheral external surface of a sliding piston is in contact with an internal cylinder surface.

In the proposed combination, should one wish to reduce the operating characteristics by shortening the reciprocating stroke of either the spool or the sleeve, one would simply reduce the appropriate lengths of the appropriate elements.

Additionally, regardless of what the "current invention teaches" should the prior art teach or reasonable suggest the modification called for by the claims over a primary reference, for reasons explicit or reasonable gleaned from that reference, then a legal, "obvious" combination of references would appear to be proper.


The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Rivell whose telephone number is (571) 272-4918. The examiner can normally be reached on Mon.-Thur. from 6:30am-5:00pm.



If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gene Mancene can be reached on (571) 272-4930. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
**John Rivell**  
**Primary Examiner**  
**Art Unit 3753**

j.r.